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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

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Date of mailing (day/month/year) 01 March 1999 (01.03.99)	
International application No. PCT/EP98/04264	Applicant's or agent's file reference 701.742
International filing date (day/month/year) 09 July 1998 (09.07.98)	Priority date (day/month/year) 24 July 1997 (24.07.97)
Applicant DAINESE, Lino	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
01 February 1999 (01.02.99)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No.: (41-22) 740.14.35</p>	<p>Authorized officer C. Carrié</p> <p>Telephone No.: (41-22) 338.83.38</p>
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PATENT COOPERATION TREATY

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REC'D 19 MAY 1999

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 701.742	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP98/04264	International filing date (day/month/year) 09/07/1998	Priority date (day/month/year) 24/07/1997
International Patent Classification (IPC) or national classification and IPC A41D13/00		
Applicant DAINESE S.P.A. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 4 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 01/02/1999	Date of completion of this report 17.05.99
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0 Tx: 523656 epmu d Fax: (+49-89) 2399-4465	Authorized officer Amery, M Telephone No. (+49-89) 2399 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP98/04264

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-4 as originally filed

Claims, No.:

1-7 as originally filed

Drawings, sheets:

1/3-3/3 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP98/04264

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1-7
	No: Claims
Inventive step (IS)	Yes: Claims 1-7
	No: Claims
Industrial applicability (IA)	Yes: Claims 1-7
	No: Claims

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP98/04264

- 1) The closest prior art document EP-A-0 212 206 (D1) discloses a protective device for protecting the spinal region of a motorcyclist. This device is comprised of a series of vertically aligned resilient elements articulated to one-another.

The problem posed with regard to this known protection means can be regarded as that of improving the wearer comfort without impairing protection properties.

A spinal protection device is known from US-A-5 328 447, the said device being providable in substantially two parts (upper and lower) joined by strap means. This device is conceived for sports use, however and is not considered to teach the skilled person an improvement to the device of D1.

The solution according to the invention (see Claim 1) provides a protection device in two vertically aligned parts, each part being a support comprising plural rigid members, whereby the two supports are hinged together by a pin means.

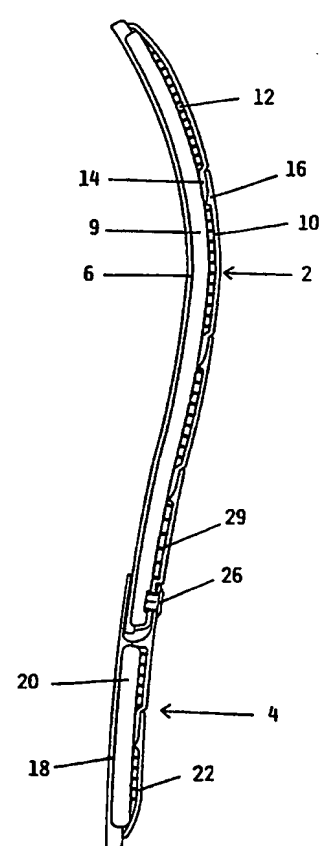
This solution is not disclosed or suggested by the prior art available.

The features of claim 1 are considered to meet the requirements of Articles 33(2) and 33(3) PCT.

- 2) Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

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International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A41D 13/00, A41B 13/00	A1	(11) International Publication Number: WO 99/04661 (43) International Publication Date: 4 February 1999 (04.02.99)
(21) International Application Number: PCT/EP98/04264 (22) International Filing Date: 9 July 1998 (09.07.98) (30) Priority Data: VE97U000036 24 July 1997 (24.07.97) IT (71) Applicant (for all designated States except US): DAINESE S.P.A. [IT/IT]; Via dell' Artigianato, 35, I-36060 Molvena (IT). (72) Inventor; and (75) Inventor/Applicant (for US only): DAINESE, Lino [IT/IT]; Via dell' Artigianato, 35, I-36060 Molvena (IT). (74) Agent: PIOVESANA, Paolo; Corso del Popolo, 70, I-30172 Venezia Mestre (IT).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report.
(54) Title: BACK PROTECTOR, IN PARTICULAR FOR MOTORCYCLISTS (57) Abstract <p>A back protector, in particular for motorcyclists, characterised by comprising two vertically aligned supports (2, 4) provided with means (8, 28) for their fixing to the motorcyclist's body, each of said supports carrying a plurality of substantially rigid elements (10, 22) fixed thereto, the lower support (4) being hinged to the upper support (2) on a pin (26).</p> 		

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BACK PROTECTOR, IN PARTICULAR FOR MOTORCYCLISTS

This invention to a back protector, in particular for motorcyclists.

Protectors for body parts are known. In certain cases they consist of substantially rigid paddings and/or shields which in the case of a fall absorb
5 the impact, to protect those parts of the motorcyclist's body most exposed to injury and fracture (shoulders, elbows, knees, etc.).

These elements are applied to the motorcyclist's suit and generally comprise an outer shell constructed of substantially rigid plastic, an inner layer able to absorb the impact energy, and a layer of soft material provided
10 with means for its fixing to the suit.

With regard to back protection, belts are known in the form of a band provided at its rear with a plurality of substantially rigid elements, each consisting of a plate arranged vertically aligned with partial overlap between each plate and the adjacent plate.

15 In the motorcyclist field the objective is to achieve maximum protection of that part of the spinal column comprising the spinal cord, because of the seriousness of possible injury in that anatomical region. As the vertebrae involved by the spinal cord comprise the thoracic vertebrae (as far as the twelfth) and the first two lumbar vertebrae, ie a position which for an individual
20 of average height reaches a few centimetres above the waistline, this belt provides protection in that anatomical region.

However, as the protective action preferably also extends to the remaining portion of the spinal column, ie for the remaining lumbar vertebrae, such back protectors extend below the waistline to also cover part of the
25 glutei.

This protection system has however the drawback that the rigidity of the structure opposes lateral flexure of the trunk and forward and rearward bending, so interfering with the movements required during driving.

An object of the invention is to eliminate these drawbacks by providing
5 a back protector for the spinal cord and glutei of the spinal column which however allows free lateral flexure of the trunk and forward bending but only moderate rearward bending, while always performing its protective function.

This and further objects which will be apparent from the ensuing description are attained according to the invention by a back protector, in
10 particular for motorcyclists as described in claim 1.

This invention is described in detail hereinafter with reference to the accompanying drawings, on which:

Figure 1 is a schematic view of a protector according to the invention,

Figure 2 is a front view thereof,

15 Figure 3 is an enlarged cross-section therethrough on the line III-III of Figure 2,

Figure 4 is an enlarged cross-section therethrough on the line IV-IV of Figure 2, and

Figure 5 is a an enlarged cross-section therethrough on the line V-V of Figure
20 2.

As can be seen from the figures, the back protector according to the invention comprises a substantially elliptical upper element 2 extending through a length such as to cover the thoracic vertebrae and the first two lumbar vertebrae, and an underlying element 4 of length such as to cover the
25 remaining lumbar vertebrae and part of the glutei.

In particular, the element 2 consists of a layer of soft expanded material 6 provided with braces 8, an intermediate layer 9 of soft material able to absorb the impact energy, and a plurality of superposed plates 10 (four in the illustrated example), the inner surface of each plate comprising a plurality of ribs 12 which mutually intersect to form a honeycomb structure.

Besides providing each plate with the mechanical strength enabling it to distribute the effects of a concentrated impact, the honeycomb structure itself absorbs a part of the energy to deform by deflection on impact.

Each plate 10 has a depressed lower end portion 14 on which the upper end 16 of the underlying plate is superposed.

The lower element 4 comprises substantially an inner layer 18 of expanded soft material to which there are applied a soft material layer 20 to absorb the impact and two plates 22. The upper plate of the element is hinged on an end pin 26 to the lower end of the lower plate 29 of the upper element 2.

The type of connection between two adjacent plates both of the upper element 2 and of the lower element 4 is shown in Figures 4 and 5. It is made by hinge elements which enable the plates to rotate relative to each other without fissures or cavities being created between one plate and the next.

The expanded material layer 18 is fixed at both ends to a support belt 28 which is secured to the motorcyclist's waist.

The plate structure allows free forward bending movement and follows the back profile in the various positions assumed by the driver.

From the foregoing it is apparent that the protection element of the invention not only provides total protection to the vertebrae of the spinal cord

and of the gluteus part, but also, by virtue of the hinging of the two parts and of the hinging between adjacent plates, enables the bust to flex laterally and to bend forward and backward.

Braces and belts have been used in the illustrated embodiment,
5 however the invention also allows the use of support means in the form of buttons, zip fasteners and any element enabling the back protector to be applied to a jacket, a suit or any other article of clothing.

C L A I M S

1. A back protector, in particular for motorcyclists, characterised by comprising two vertically aligned supports (2,4) provided with means (8,28) for their fixing to the motorcyclist's body, each of said supports carrying a plurality
5 of substantially rigid elements (10,22) fixed thereto, the lower support (4) being hinged to the upper support (2) on a pin (26).
2. A protector as claimed in claim 1, characterised in that the rigid elements consist of plates (10,22) comprising on one surface a strengthening grid of ribs (12).
- 10 3. A protector as claimed in claim 2, characterised in that the plates of each support are connected together mechanically by hinge elements (14,16).
4. A protector as claimed in claim 1, characterised in that the upper support (2) also comprises an intermediate layer (9) of material providing impact absorption.
- 15 5. A protector as claimed in claim 1, characterised in that the lower support (4) also comprises an intermediate layer (20) of material providing impact absorption.
6. A protector as claimed in claim 1, characterised in that the upper element is provided with braces (8).
- 20 7. A protector as claimed in claim 1, characterised in that the lower element is provided with a belt (28).

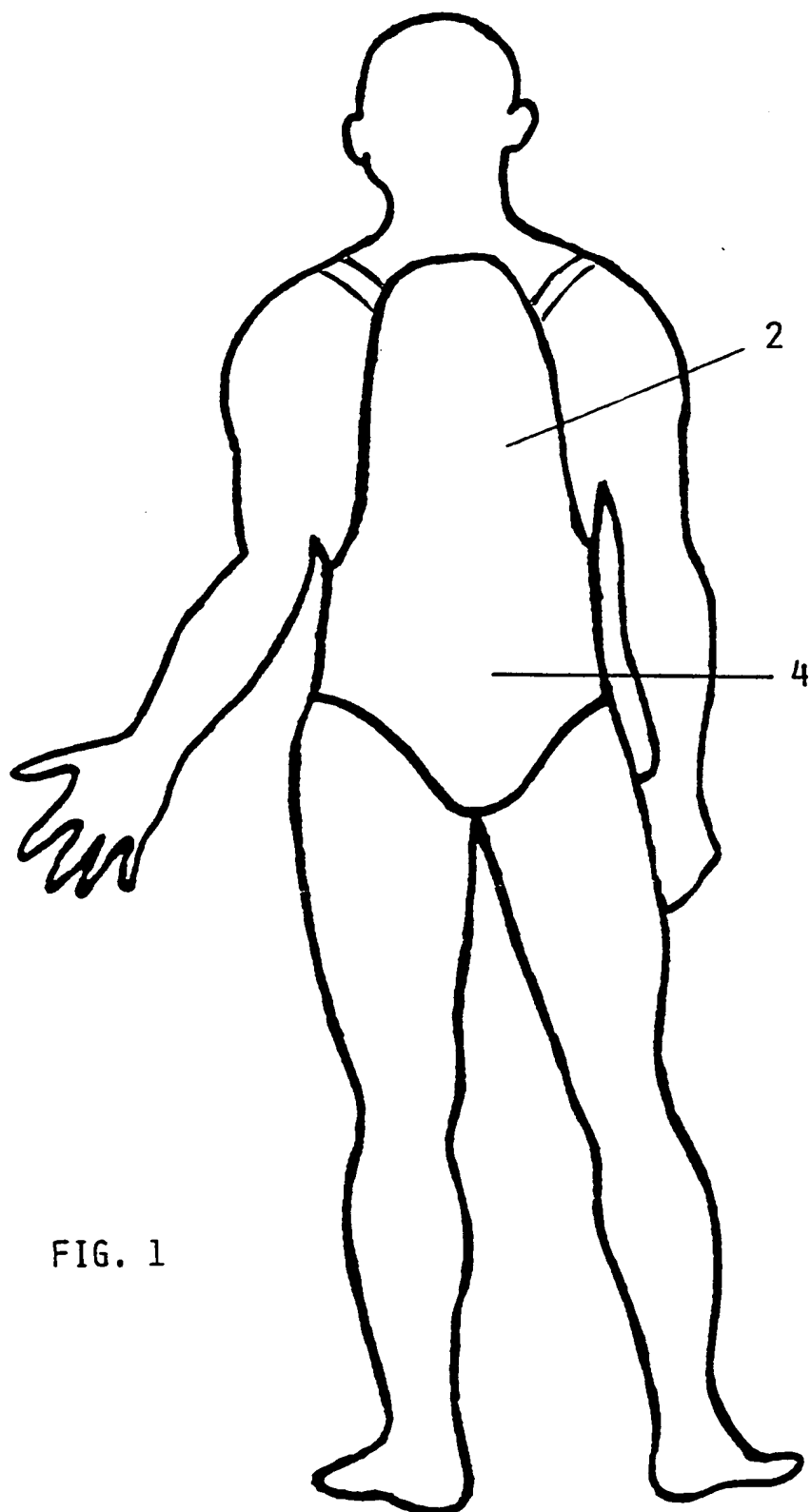


FIG. 1

FIG. 2

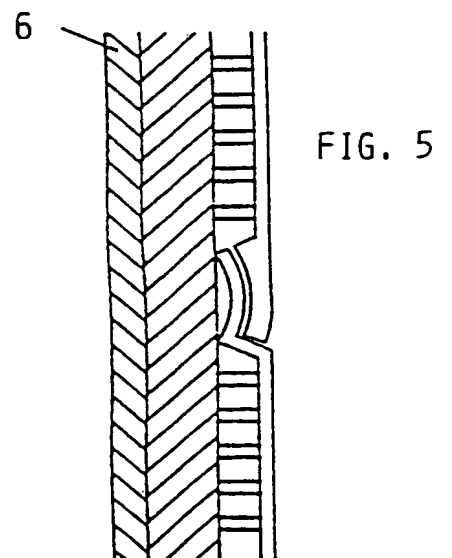
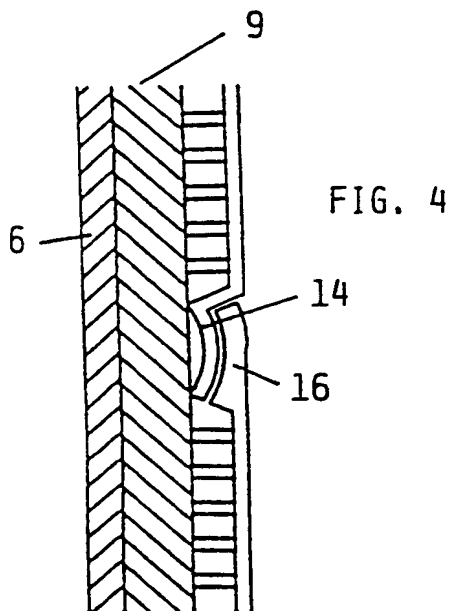
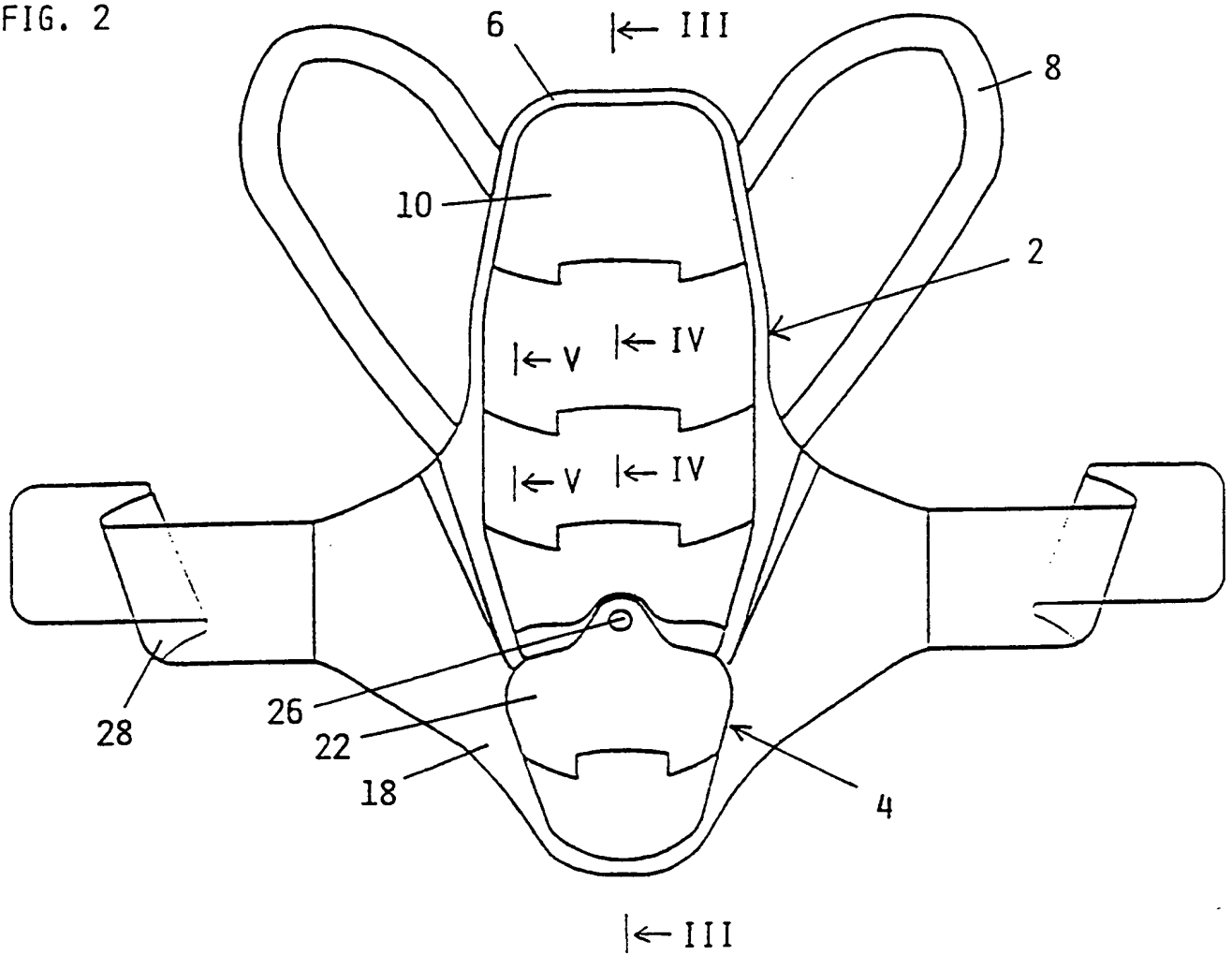


FIG. 3

